

IN THE CLAIMS

Please amend the claims as follows:

Claims 1-20 (Canceled).

Claim 21 (New): A quality-of-service reservation method for managing network resources and/or service parameters needed for symmetric real-time multimedia applications and/or data services running on a mobile node and a correspondent node by signaling resource control information along specific routing paths between the nodes, the method comprising:

embedding resource control information to be transmitted between the mobile node and the correspondent node in a message which is sent via the routing path of the reserved connection for the nodes; and

disseminating resource control information between the mobile node and the correspondent node by using the same routing path through the network in both directions.

Claim 22 (New): A method according to claim 21, wherein
the mobile node initiates a resource reservation request message indicating demand for a predefined amount of network resources simultaneously for both directions.

Claim 23 (New): A method according to claim 21, wherein
the correspondent node initiates a resource reservation request message indicating demand for a predefined amount of network resources simultaneously for both directions.

Claim 24 (New): A method according to claim 22, wherein
the initiator of the resource reservation request message generates a unique reservation identifier associating a bidirectional connection to achieve a specific forwarding behaviour which remains unchanged during the lifetime of the associated flow.

Claim 25 (New): A method according to claim 22, further comprising:
allocating network resources by using resource control information piggy-packed in an IP datagram, monitoring the network resources, or simultaneously allocating and monitoring at the same time for both directions of the resource reservation request message, wherein resource control information for both directions of the reserved routing path is embedded in a same IP datagram.

Claim 26 (New): A method according to claim 21, wherein
resource control information for each direction of a reservation is piggybacked via resource information elements that are a part of a header extension of an IP datagram, wherein each resource information element represents either a resource attribute along the reserved routing path, associated with a quantifiable resource metric for either one or both directions of the flow, or a flow attribute for an individual flow or flow aggregate, associated with quantifiable and non-quantifiable flow context information either for one or both directions of the flow.

Claim 27 (New): A method according to claim 26, wherein
the resource information elements describe resource control information for upstream direction from the initiator towards the receiver or downstream direction from the receiver towards the initiator of a resource reservation request message or for both directions together,

wherein upstream and downstream direction are uniquely identified by the mobile node and the correspondent node due to their role in the reservation procedure either as initiator or receiver of a resource reservation request message.

Claim 28 (New): A method according to claim 26, wherein
the resource information elements are organized in a modular fashion for each flow, wherein the node that originates the resource control information determines the number of resource information elements to be placed into the IP datagram header.

Claim 29 (New): A method according to claim 21, wherein
each resource information element includes a field for the monitored attribute value and attribute requirement specification fields specifying resource-attribute-specific flow requirements, which are described by an upper threshold defining the maximum value and/or a lower threshold defining the minimum value for the respective resource attribute.

Claim 30 (New): A method according to claim 21, further comprising:
simultaneously monitoring information about available resources for both directions of the reservation along the reserved routing path between the mobile node and the correspondent node;
for every node along the reserved routing path, determining actual resource attribute values for upstream and downstream directions; and
if at any node along the reserved routing path a monitored resource attribute either for the upstream or downstream direction or for both directions has a value which is less than the correspondent monitored attribute value that is carried in an IP datagram header, assigning the new value to the resource information element of the IP datagram header, which enables

the receiver of the resource control information to determine current resource values for both directions.

Claim 31 (New): A method according to claim 21, further comprising:

sending a resource reservation request message describing a set of attribute requirement specifications and controlling the resource allocation procedure either for one or both directions of the resource reservation by either the mobile node or the correspondent node; and

based on such a resource reservation request message, determining resource attribute values that should be allocated for the upstream direction, the downstream direction, or both directions at the same time by every forwarding node along the reserved routing path.

Claim 32 (New): A method according to claim 21, wherein

resource control information for different bidirectional flows is piggy-packed in a same IP datagram, wherein for each flow a reservation identifier information element referring to additional flow and resource information elements in the header of the IP datagram is attached to the IP datagram header and a grouping of reservation identifiers and other resource information elements determines membership of the information to a specific flow.

Claim 33 (New): A method according to claim 21, wherein

either the mobile node or the correspondent node determines on an IP layer whether bidirectional or unidirectional resource control information can be inserted into an IP datagram that is ready to be transmitted to the networking interface or whether a separate IP datagram needs to be generated for that purpose.

Claim 34 (New): A method according to claim 33, wherein
resource control information is placed in any IP datagram which follows the reserved
routing path between the initiator and the receiver of a resource reservation request message.

Claim 35 (New): A method according to claim 21, further comprising:
recognizing conditions of insufficient resources along the routing path for upstream
and downstream directions at the correspondent node by comparing monitored attribute
values with the attribute requirement specifications in the resource information elements of
an arriving IP datagram.

Claim 36 (New): A method according to claim 21, further comprising:
setting monitored resource attribute values of specific resource information elements
specified in an IP datagram header to zero in case one or more forwarding nodes do not
support the resource attributes.

Claim 37 (New): A method according to claim 21, further comprising:
setting those attribute values carried in an IP datagram header to zero that enable
reservation end points to easily interpret the situation of routing asymmetry if upstream and
downstream paths for a bidirectional reservation do not follow identical routes at a specific
routing node along the reserved routing path.

Claim 38 (New): A method according to claim 21, further comprising:
interpreting resource reservation request messages with a value zero for one or more
attribute requirement specifications as explicit release messages by forwarding nodes along

the reserved routing path and by the initiator or receiver of the resource reservation request messages; and

associating values of the attribute requirement specifications with removal of flow-specific reservation state information in the forwarding nodes along the reserved routing path.

Claim 39 (New): A method according to claim 21, further comprising:

interpreting resource reservation request messages with a value unequal to zero for one or more attribute requirement specifications as explicit setup messages by forwarding nodes along the reserved routing path and by the receiver of the resource reservation request messages; and

associating values of these attribute requirement specifications with installation of flow-specific reservation state information in the forwarding nodes along the reserved routing path.

Claim 40 (New): A method according to claim 21, further comprising:

piggy-packing a flow information element specifying a type of reservation as either bidirectional or unidirectional in an IP datagram header of a reservation setup message; and

interpreting the flow information element at forwarding nodes along the reserved routing path to ensure correct installation of reservation state information.